

Exercise 2: Scalable Data Engineering

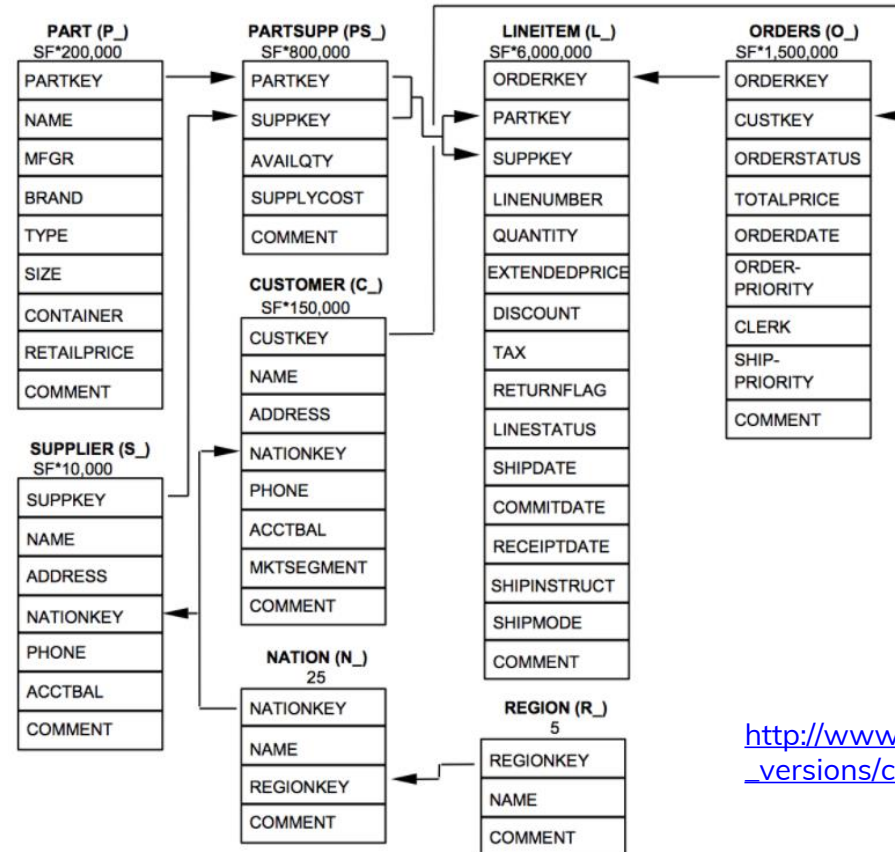
Lecture 4: Multidimensional Querying

1.1 Are the following statements true or false? Give reasons for your answer.

- a) The simple GROUP BY clause is expressive enough for all multidimensional purposes.
- b) CUBE and ROLLUP can be implemented using GROUPING SETS.
- c) ROLLUP creates the cross-product of all attributes in the attribute list.
- d) Having an efficient implementation of ROLLUP automatically provides an efficient solution for CUBE.
- e) An empty over() clause works similarly to an aggregate function with a group by clause.
- f) Contrary to other programming languages, SQL automatically transforms a division of integers into a floating point type.
- g) The ORDER BY clause adds the sort attributes to the partitioning attributes of the OVER clause.
- h) MDX queries are fully compatible with the SQL standard.

The TPC-H Schema

1.2 A ROLAP schema



http://www.tpc.org/tpc_documents_current_versions/current_specifications5.asp

1.2 Write down the SQL queries resulting in the following answers on the TPC-H schema.

- a) The average total price of each order.
- b) Extract the revenue (o_totalprice, see order) for every nation with its region, every region, and the grand total.
- c) List the number of orders per quarter and their share in the corresponding annual sales.
- d) List all parts (names) with their sold quantity and rank them in descending order.
- e) For each part, list all countries that supplied that part with the count of supplied parts and rank the countries in descending order.